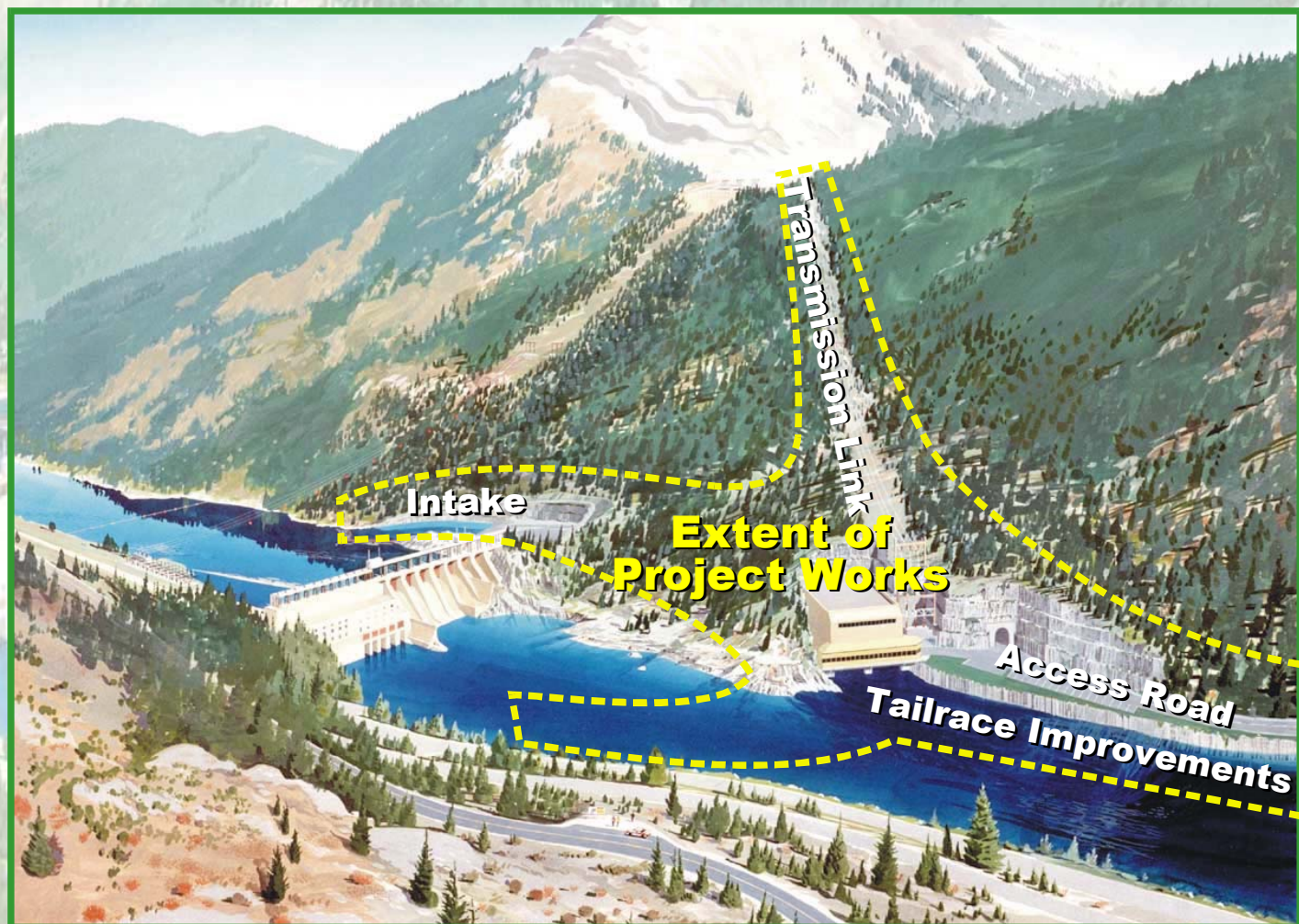


# BRILLIANT EXPANSION PROJECT

- Utilizes power tunnel
- 120 MW Capacity
- 500 GWh Energy
- Transmission link to Brilliant Terminal Station
- Will reduce TGP downstream







Design Engineer/  
Electro-Mechanical Contractor



Civil Contractor



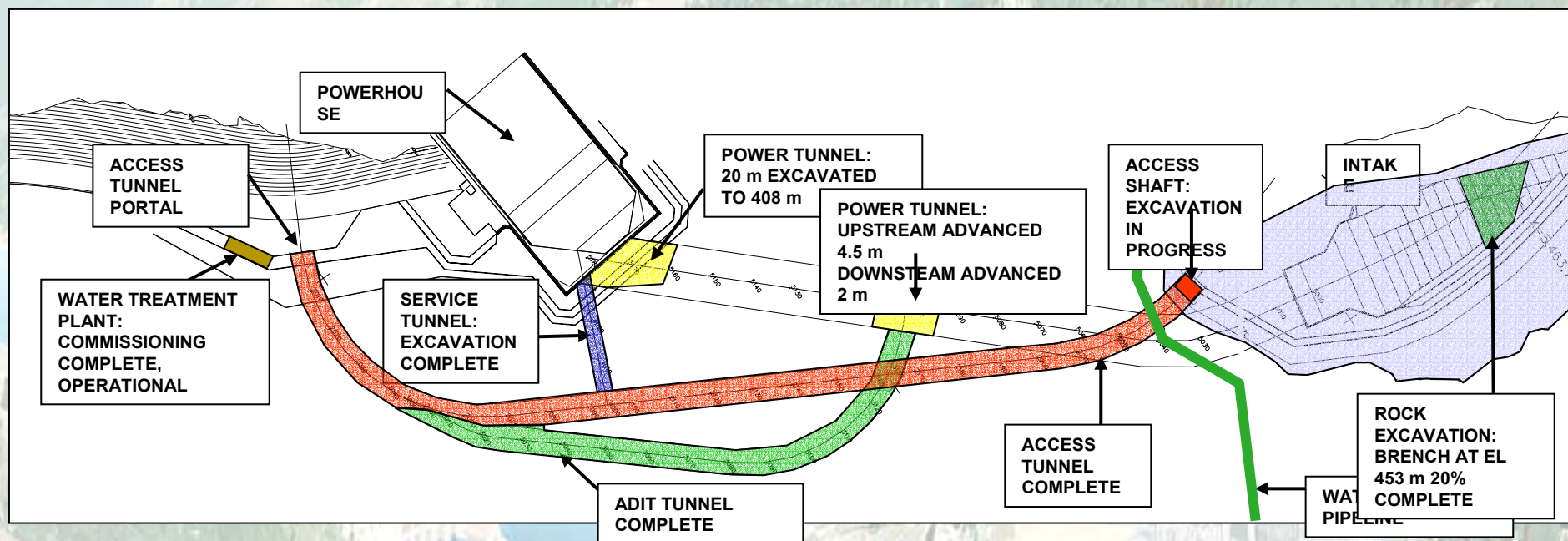
Sponsor



Sub-Contractor



# BRILLIANT EXPANSION PROJECT – Tunnel Excavation



TUNNEL EXCAVATION PROGRESS

DATE 16-Apr-04

TUNNEL	TOTAL LENGTH	EXCAVATED TO DATE	CROSS SECTION AREA
	m	m	m <sup>2</sup>
Access	244	244	22.5
Adit	140	140*	20.5
Power	160	Downstream Transition 20 m excavated to 408m	130
Service	30	30	16

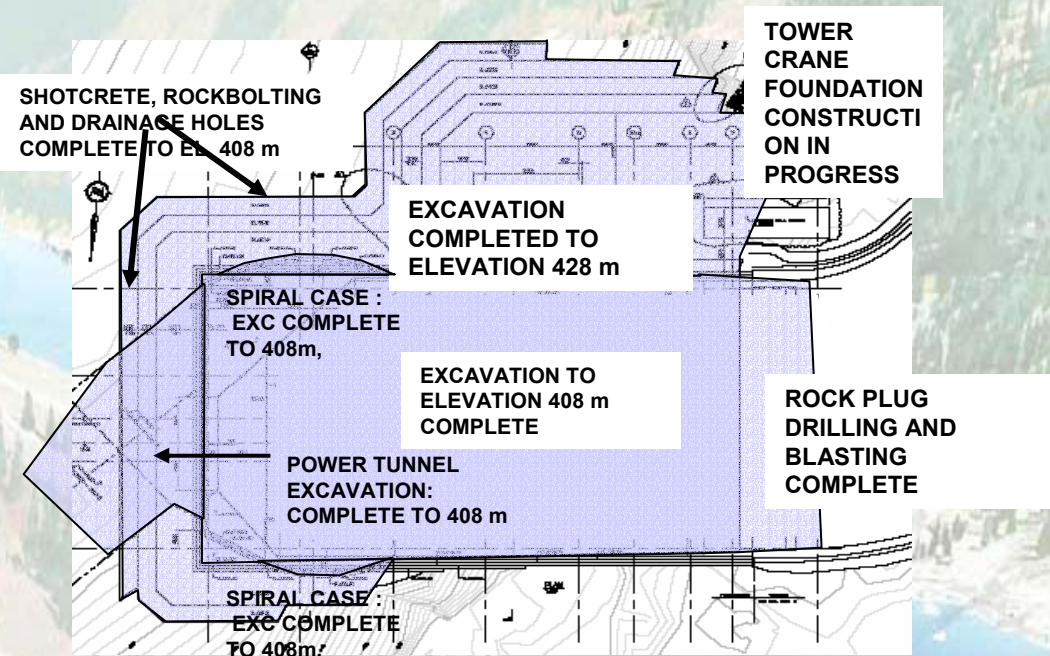
\*Note: Centre line distance measured from intersection with Access Tunnel

CONSTRUCTION PROGRESS 16 APRIL  
2004

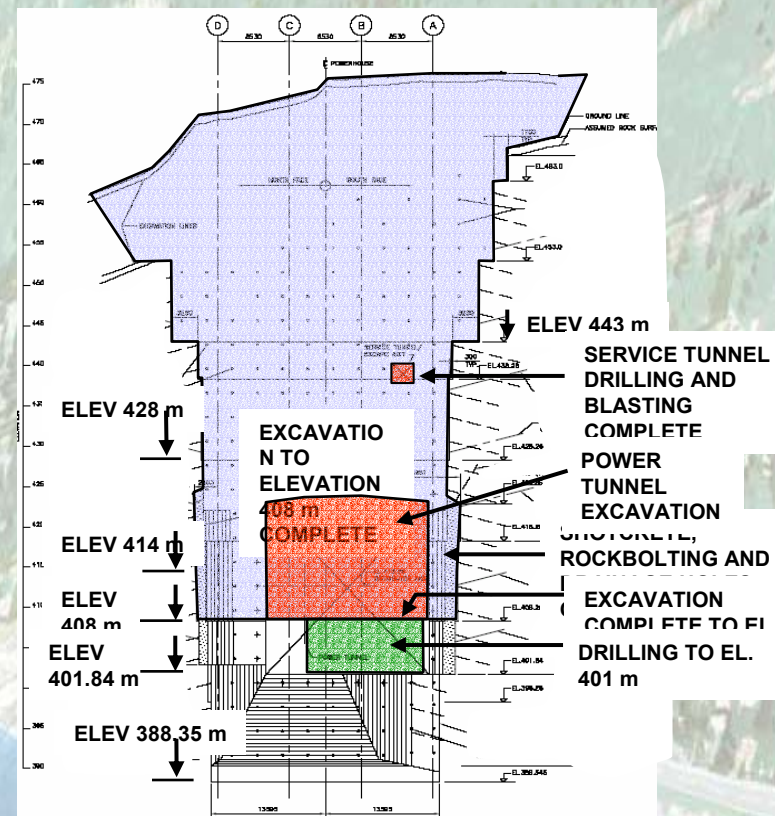
FIGURE 3 – TUNNEL EXCAVATION



# BRILLIANT EXPANSION PROJECT – Powerhouse Excavation Section



POWERHOUSE EXCAVATION PLAN



POWERHOUSE EXCAVATION SECTION  
CONSTRUCTION PROGRESS 16  
APRIL 2004  
FIGURE 2 - POWERHOUSE  
EXCAVATION



- **September 2003**
  - **Begin drilling for excavation of powerhouse bench**
- **April 2004**
  - **Complete first placement of structural concrete greater than 50 m<sup>3</sup> for the draft tube foundation**
- **May 2004**
  - **Complete placement of concrete for draft tube slab to El. 400**
- **August 2004**
  - **Complete placement of concrete for Turbine Floor**
- **November 2004**
  - **Start erection steel superstructure for service bay**
- **February 2005**
  - **Start installation of stay ring**
- **May 2005**
  - **Start installation of upper pit liner**
- **September 2005**
  - **Turbine and generator pit available “shaft free”**
- **December 2005**
  - **Stacking lamination for stator completed**
- **March 2006**
  - **Winding installation for stator completed**
- **June 2006**
  - **Ready to turn**
- **August 2006**
  - **Guaranteed Power Date**
- **September 2006**
  - **Substantial Completion Milestone Date**
- **October 2006**
  - **Facility Completion Date**



# A Look at the Project - April 2003 – April 2004



*Spring 2003 –  
Access road construction begins*





# A Look at the Project - April 2003 – April 2004

*Summer 2003 -  
Access road construction continues and  
powerhouse excavation begins*





# A Look at the Project - April 2003 – April 2004

*Fall 2003 –  
Powerhouse excavation continues*





# A Look at the Project - April 2003 – April 2004

*Winter 2003 –  
Power and access tunnel excavation  
begins*





# A Look at the Project - April 2003 – April 2004

*January 2004 -*

*Work continue on tunnel excavation,  
sheet pile wall construction and tailrace  
area work*





# A Look at the Project - April 2003 – April 2004



*February 2004 –  
Power tunnel excavation begins*





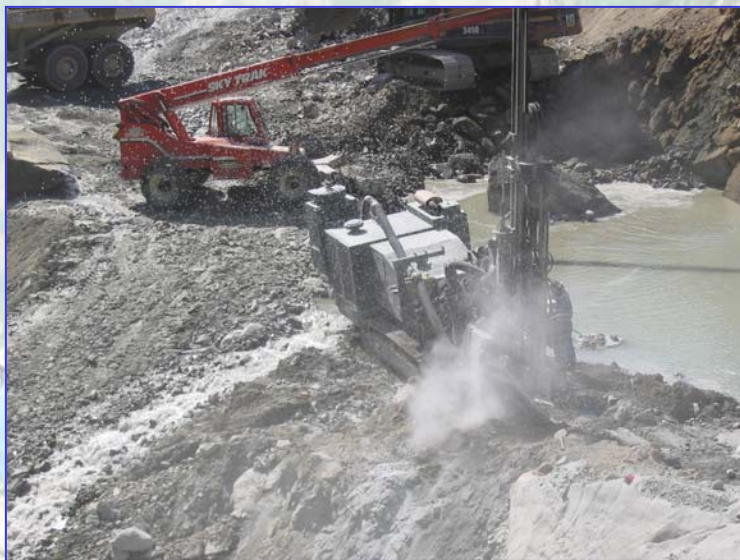
# A Look at the Project - April 2003 – April 2004

*March 2004 -  
Work continues and draft tube  
construction begins*





# A Look at the Project - April 2003 – April 2004



*April 2004 -  
Access tunnel and adit tunnel completed  
tailrace area berm removed and work  
continues on power tunnel excavation*

